



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61B 17/064, 17/06		A3	(11) International Publication Number: WO 99/62406
			(43) International Publication Date: 9 December 1999 (09.12.99)
(21) International Application Number: PCT/US99/12566		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 3 June 1999 (03.06.99)		Published With international search report.	
(30) Priority Data: 09/089,884 3 June 1998 (03.06.98) US 09/260,623 1 March 1999 (01.03.99) US		(88) Date of publication of the international search report: 27 April 2000 (27.04.00)	
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(54) Title: TISSUE CONNECTOR APPARATUS AND METHODS			
(57) Abstract			
<p>A tissue connector assembly having a flexible member and a surgical fastener such as a surgical clip releaseably coupled to the flexible member. A needle may be secured to one end portion of the flexible member with the surgical clip coupled to the other end portion of the flexible member. A locking device may be used to releaseably couple the flexible member to the surgical clip. The tissue connector assembly may have one or more piercing members, each releaseably coupled to the surgical fastener. A flexible member such as a suture may be used to couple one or both piercing members to respective ends of the fastener.</p>			

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INTERNATIONAL SEARCH REPORT

Inter. Appl. No.

PCT/US 99/12566

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 A61B17/064 A61B17/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 242 456 A (NASH) 7 September 1993 (1993-09-07)	1
A	figures 15,24 ---	25,79
X	EP 0 641 546 A (ETHICON) 8 March 1995 (1995-03-08)	1
	figure 18 ---	
X	US 5 374 268 A (SANDER) 20 December 1994 (1994-12-20)	44,50, 52,53
A	column 3, last paragraph; figures 1,2,4,6 ---	54
X	WO 97 32526 A (YOON) 12 September 1997 (1997-09-12)	1,7,9, 10,12, 13,15,16
A	figures 4A,16,25,35 ---	51,71
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"A" document member of the same patent family

Date of the actual completion of the international search

26 January 2000

Date of mailing of the international search report

17.02.2000

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INTERNATIONAL SEARCH REPORT

Inter. Patent Application No

PCT/US 99/12566

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 002 563 A (PYKA) 26 March 1991 (1991-03-26) column 5, line 10 - line 12; figures 4,5 ---	1,25,79
A	US 3 958 576 A (KOMIYA) 25 May 1976 (1976-05-25) figure 1 ---	1,25,79
A	US 5 609 608 A (UNIV CALIFORNIA) 11 March 1997 (1997-03-11) figure 6 ---	23
A	DE 195 47 617 C (NEUS MALTE) 18 September 1997 (1997-09-18) figures 4,9 ---	23
A	US 4 586 502 A (BEDI) 6 May 1986 (1986-05-06) ---	
A	DE 219 999 C (KRATZ) figure ---	
A	US 3 249 104 A (HOHNSTEIN) 3 May 1966 (1966-05-03) -----	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/12566

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 30-40, 119-125
because they relate to subject matter not required to be searched by this Authority, namely:
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
1-29, 44-112
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-22,25-29,79-112

Tissue connector assembly with releasably coupled needle/suture combination and surgical clip

2. Claims: 23,24

Needle/suture combination with locking device

3. Claims: 44-78

Surgical fastener with double piercing member

4. Claims: 113-115

Connection means using compressed tube

5. Claim : 116

Connection means with interlocking grooves and projections

6. Claim : 117

Connection means with knot/constriction

7. Claim : 118

Connector with integral severing means

8. Claims: 126,127

Hollow suture

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/12566

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